

IF YOU ADD **1** TO A NUMBER,  
YOU GET THE NEXT ONE.

$$1 + 25 = 26$$

$$13 + 1 = 14$$

$$63 + 1 = 64$$

$$72 + 1$$

$$1 + 15 = 16$$

$$1 + 18$$

IF YOU ADD 2 TO AN ODD ONE,  
YOU GET THE NEXT ODD

$$2 + 7 = 9 \quad | \quad 15 + 2 = 17$$

IF YOU ADD 2 TO AN EVEN ONE,  
YOU GET THE NEXT EVEN

$$2 + 8 = 10 \quad | \quad 14 + 2 = 16$$

$$2 + 26 = 28$$

$$2 + 34 = 36$$



# THE FIRST 9-RECIPE

THINK / LESS AND TEEN

$$7 + 9$$

6 TEEN

$$9 + 4$$

3 TEEN

$$9 + 9$$

8 TEEN

$$9 + 2$$

$$9 + 5$$

4 TEEN

$$9 + 6$$

## 2ND 9-RECIPE

THINK /MORE, /LESS

$$87 + 9$$

$$96$$

$$29 + 4$$

$$33$$

$$23 + 9$$

$$32$$

$$76 + 9$$

$$129 + 5$$

$$134$$

$$119 + 3$$



# THE 10-PARTNERS

## A VISUAL

$$14 + 6$$

$$21 + 9$$

$$35 + 5$$

$$42 + 8$$

$$57 + 3$$

$$96 + 4$$

# Four Seven

STEPPING Eleven STONE

$$4+7=11$$

$$5+7=$$

$$4+7=11$$

$$4+8=$$

$$4+7=11$$

$$3+8$$

11  
8  
6  
4 TEEN

3  
3  
5  
8  
13

3.5.8

5.8.13



# ALGORITHMS

THINK

$$\begin{array}{r}
 37 \\
 + 8 \\
 \hline
 45
 \end{array}$$

RELAY  
METHOD  
ADDING UP!

WITHOUT  
CRUTCH  
FINGERS

EYES

$$\begin{array}{r}
 88 \\
 + 15 \\
 \hline
 103
 \end{array}$$

PEN

THINK

$$\begin{array}{r}
 79 \\
 + 17 \\
 \hline
 96
 \end{array}$$

$$\begin{array}{r} 9 - 2 = \\ 7 \end{array}$$

$$\begin{array}{r} 9 - 4 = \\ 5 \end{array}$$

THINK 1 LESS, 1 MORE

$$\begin{array}{r} 37 - 9 = \\ 28 \end{array}$$

$$\begin{array}{r} 72 - 9 = \\ 63 \end{array}$$

$$\begin{array}{r} 59 - 8 = \\ 5 \quad 1 \end{array}$$

$$\begin{array}{r} 49 - 3 = \\ 4 \quad 6 \end{array}$$

$$\begin{array}{r} 106 - 9 = \\ 97 \end{array}$$

$$\begin{array}{r} 237 - 9 = \\ 228 \end{array}$$



$$13 - 5 = 8 \quad | \quad 15 - 7 = 8$$

THE DIRECT WAY

2 STEPS  
THE INDIRECT WAY  
USING THE 10-PARTNERS

$$12 - 7 = 3 + 2 = 5$$

$$14 - 8 = 2 + 4 = 6$$

$$44 - 6 = 38 \quad (40 - 2)$$

$$75 - 7 =$$

# ALGORITHMS

"Put / Take /

$$\begin{array}{r} 43 \\ - 8 \\ \hline 35 \end{array}$$

$\Delta \bullet 13 - 8 = 5$

$\Delta \bullet 4 - 1 = 3$

A red arrow points from the result 5 of the first subtraction to the 5 in the second subtraction. A green bracket is under the result 35 of the second subtraction.

$$\begin{array}{r} 73 \\ - 25 \\ \hline 48 \end{array}$$

$\Delta \bullet 13 - 5 = 8$

$\Delta \bullet 6 - 2 = 4$



# THE NEW TABLES

$9 \times 2$

$5 \times 2$

$6 \times 2$

$9 \times 3$

$5 \times 4$

$6 \times 4$

$9 \times 4$

$5 \times 6$

$6 \times 6$

$9 \times 5$

$5 \times 8$

$6 \times 8$

$9 \times 6$

$2 \times 2$

$3 \times 4$

$9 \times 7$

$2 \times 3$

$7 \times 8$

$9 \times 8$

$7 \times 3$

$7 \times 6$

$9 \times 9$

$8 \times 4$

$8 \times 8$

$3 \times 3$

$5 \times 3$

$7 \times 2$

$4 \times 2$

$3 \times 6$

$5 \times 7$

$7 \times 4$

$4 \times 4$

$3 \times 8$

$5 \times 5$

$7 \times 7$

$8 \times 2$

# THE NEW TABLES

6 and Even  
Half the  
Number and  
the Number

$$6 \times 2 = 12$$

$$6 \times 4 = 24$$

$$6 \times 6 = 36$$

$$6 \times 8 = 48$$

5 and Even  
Half the  
Number  
and Zero

$$5 \times 2 = 10$$

$$5 \times 4 = 20$$

$$5 \times 6 = 30$$

$$5 \times 8 = 40$$

The 9-Partners

1 2 3 4

8 7 6 5

The 9 Recipe:  
Think 1 Less  
and  
the Partner

$$9 \times 2 = 18$$

$$9 \times 3 = 27$$

$$9 \times 4 = 36$$

$$9 \times 5 = 45$$

$$9 \times 6 = 54$$

$$9 \times 7 = 63$$

$$9 \times 8 = 72$$

$$9 \times 9 = 81$$

Count to Eight.  
Answers in Front.

1 2 3 4

5 6 7 8

$$2 \times 2 = 4$$

$$2 \times 3 = 6$$

Answers Behind.

7 6 4 2

8 8 6 4

EVEN EVEN

Answers Behind.

7 3 2 1

8 4 3 2

If  
 $2 \times 4 = 8$   
Then  
 $4 \times 4$   
=

2 Eightssss  
sixteen

2x7  
2 Weeks  
A Fortnight 14

4x7  
4 Weeks 14+14=28

4x7 Shortest Month  
FEBRUARY  
12345678

2nd Month 8 Letters

A WEEK & A WEEK  
A FORT NINE 49

5 x ODD  
ENDS IN 5 WITH  
ODD NUMBER  
IN FRONT

$$5 \times 3 = 15$$

$$5 \times 7 = 35$$

HOW MANY ?  
 $5 \times 5 = 25$

5

10

15

20

25

30

35

Channel  
9  
3 x 3

36  
Multiplications  
Amazing Numbers  
1 9 Partners  
2 Half 36=18  
3 3x6=18  
4 To Remember  
the 3 Threes  
Group

8  
x  
3



# ALGORITHMS

$$\begin{array}{r} 123 \\ \times 2 \\ \hline 246 \end{array}$$

$$10 \times 4 = 40$$

$$100 \times 5 = 500$$

$$1000 \times 6 = 6000$$

$$\begin{array}{r} 123 \\ \times 321 \\ \hline 123 \\ 2460 \\ 36900 \\ \hline 39483 \end{array}$$

$$40 + 56$$

$$57$$

$$\times 8$$

$$456$$

IGNORE  
9

CHECK

3

$\times 8$

24(6)

# FROM MULTIPLICATION TO DIVISION

---

**VISUALISE**, EYES CLOSED.

A PROFESSIONAL MEMORY TRAINING TECHNIQUE

$$9 \times 6 = 54$$

- PULL IT APART & PUT IT TOGETHER AGAIN  
A COUPLE OF TIMES.

- SAY ALOUD,  $9.6.54$

---

<sup>NOW</sup>  
**REMEMBER**

$$54 \div 6 = 9$$

$$54 \div 9 = 6$$



# LONG DIVISION

TYPE 1

$$12345 \div 3 = 4115$$

$$\begin{array}{r} \underline{-12} \\ 3 \\ \underline{-3} \\ 4 \\ \underline{-3} \\ 15 \\ \underline{-15} \end{array}$$

TYPE 2

$$34813 \div 5 = 6962 \frac{3}{5}$$

$$\begin{array}{r} \underline{-30} \\ 48 \\ \underline{-45} \\ 31 \\ \underline{-30} \\ 13 \\ \underline{-10} \\ 3 \end{array}$$

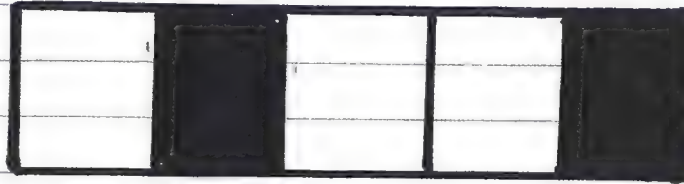
PRONOUNCE:

3 FIFTHS  
(A FRACTION)

NOTE: REMAINDER 3 IS NOT AN ANSWER



# FRACTIONS



SHADED

2 OUT OF 5

WRITE

START  $\rightarrow \frac{2}{5}$

SAY

TWO FIFTHS

NOT SHADED  
 $\frac{3}{5}$

$\frac{5}{5} - \frac{2}{5} = \frac{3}{5}$   
5 FIFTHS - 2 FIFTHS = 3 FIFTHS

$\frac{4}{7}$  NUMERATOR  
DENOMINATOR  
NAME

SPECIAL NAMES

$\frac{1}{2}$  HALF  
 $\frac{1}{3}$  A THIRD  
 $\frac{1}{4}$  A QUARTER

$$1 - \frac{3}{7} = \frac{4}{7}$$

$$1 - \frac{5}{8} =$$




$$3 - \frac{4}{5} = 2 \frac{1}{5}$$

$$3 - \frac{2}{9} =$$

$$5 - 2 \frac{1}{7} = 2 \frac{6}{7}$$

$$4 - 1 \frac{2}{11} =$$



PROPER FRACTION	IMPROPER FRACTION	MIXED NUMERAL
$\frac{5}{9}$	 $\frac{9}{5}$ NAME	$2\frac{1}{5}$
$\frac{3}{7}$	 $= 1\frac{4}{5}$ SAME NAME	
	$\frac{11}{5}$	 $2\frac{1}{5}$ PLUS TIMES
$\frac{12}{7} = 1\frac{5}{7}$		$2\frac{3}{4} = \frac{11}{4}$
$\frac{15}{8} =$		$5\frac{1}{6} =$

$$\frac{4}{7} + \frac{1}{3} = \frac{19}{21}$$

DISCOVERY  
METHOD

$$\frac{4}{7} - \frac{1}{3} = \frac{5}{21}$$

$$\frac{4}{7} \times \frac{1}{3} = \frac{4}{21}$$

$$\frac{3}{7} \div \frac{1}{2} = \frac{6}{7}$$

DISCOVERY IS AN INNER PROCESS  
AND THUS BETTER REMEMBERED



# CONVERSIONS

$3 \frac{4}{5}$	$3 \frac{8}{10}$	3.8	380%
$1 \frac{1}{4}$	$1 \frac{25}{100}$	1.25	125%
$2 \frac{3}{4}$	$2 \frac{75}{100}$	2.75	275%

$$10 \times 2.34 = 23.4$$

$$100 \times 5.67 = 567$$

$$340 \div 10000 = .034$$



# PER<sup>100</sup>CENT TO DECIMAL

$5\% = .05$	$12\% = .12$	$175\% = 1.75$
-------------	--------------	----------------

$6\%$	$\times$	$211$	$=$	$12$
-------	----------	-------	-----	------

$12\%$	$\times$	$711$	$=$	$840$
--------	----------	-------	-----	-------

$20\%$	of	$60$	$=$	$12$
--------	----	------	-----	------

WHAT %	=	of	$\frac{\text{THIS}}{\text{TH. AT}}$
--------	---	----	-------------------------------------

THIS	THAT
34	of 1711
2%	

54	of 81
$54 \div .8 = 6.75\%$	



# EQUATIONS USE LETTERS

NOT BOXES

$$\square + 10 = 15$$

$$x + 10 = 15$$

$$x = 15 - 10$$

$$y - 2 = 14$$

$$y = 14 + 2$$

$$4a = 12$$

$$a = 12 \div 4$$

$$\frac{a}{6} = 2$$

$$a = 2 \times 6$$